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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/779,092 | 02/08/2001 | William C. Hardy | RIC-00-031 | 1671 |

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| EXAMINER |
|---|
| TAYLOR, BARRY W |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2643 | |

DATE MAILED: 10/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/779,092 | HARDY, WILLIAM C. | |
| | Examiner | Art Unit | |
| | Barry W Taylor | 2643 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *11 April 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-61* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-61* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *7,8* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hollier et al (6,304,634 hereinafter Hollier) in view of Malvar (6,256,608) or Di Pietro et al (5,867,813 hereinafter Di Pietro) or Chen et al (6,356,601 hereinafter Chen).

Regarding claims 1, 18, 29, 37, 49 and 61. Hollier teaches a system and method of evaluating quality in a telephonic voice connection (Title, abstract) in a telecommunication network, comprising:

a measuring circuit operative to measure at least one characteristic of the telephonic voice connection (Title, abstract, col. 1 lines 8-67, col. 2 lines 16-67, col. 3 lines 1-60, col. 4 lines 1-67, col. 5 lines 12-65, col. 6 lines 1-67, col. 7 line 25 – col. 16 line 34); and

a processor coupled to the measurement circuit, the processor being operative to calculate a solution to at least one empirically derived mathematical function by using the at least one measured variable in the at least one empirically derived mathematical function, whereby the solution is an estimate of likely user perception of the quality of the telephonic voice connection (Title, abstract, col. 1 lines 8-67, col. 2 lines 16-67, col.

3 lines 1-60, col. 4 lines 1-67, col. 5 lines 12-65, col. 6 lines 1-67, col. 7 line 25 – col. 16 line 34).

Hollier does not explicitly show the at least one measured characteristic as an independent variable.

Malvar teaches a system and method for real time parametric modeling for a probability distribution function that approximates the users perception of the quality of a voice connection (abstract, columns 1-4, col. 5 lines 30-67, columns 7-12, col. 13 line 43 – col. 16 line 66, col. 18 line 50+). Malvar discloses using a modified probability distribution model wherein the shape is controlled by a single parameter, which is directly related to the peak value of the coefficients (columns 19-22) thus minimizing computational overhead for model selections.

Di Pietro teaches a method and apparatus for automatically and reproducibly rating the transmission quality of a speech transmission system wherein differences between characteristic values are feed to a neural network which classifies the quality of the difference signals as Good, Medium and Bad, and a defuzzyfication logic circuit further refines the quality classification output (Title, abstract). Di Pietro figure 5 shows that the tree outputs are scaled into a range of 0 to 1 and the final classification is determined by calculating the center of the area covered by the Good, Medium and Bad signal. Di Pietro also discloses that the so-called Bark scale may be used to define a twodimensional spectrogram.

Chen also teaches a method and apparatus for detecting zero rate frames in a communications system wherein a quality metric is computed and compared against a

threshold value. The threshold value is selected based, in part, on the quality metrics received frames and can be selected based on the quality metrics computed for decoded frames (Title, abstract). Chen figure 5 also shows plotting two probability density functions (i.e. PDFs) wherein the threshold 514 can be set at a value Xth such that a desired outcome is achieved.

It would have been obvious for any one of ordinary skill in the art at the time the invention was made to modify the codec as taught by Hollier to utilizes a probability density function that classify signals as taught by Malvar or Di Pietro or Chen so that the codec may classify a signal or set a value such that a desired outcome is achieved.

Regarding claims 2-9, 19-22, 31-33, 38, 42-48, and 50-53. Hollier does not explicitly show using one empirically derived mathematical probability distribution function.

Malvar teaches a system and method for real time parametric modeling for a probability distribution function that approximates the users perception of the quality of a voice connection (abstract, columns 1-4, col. 5 lines 30-67, columns 7-12, col. 13 line 43 – col. 16 line 66, col. 18 line 50+). Malvar discloses using a modified probability distribution model wherein the shape is controlled by a single parameter, which is directly related to the peak value of the coefficients (columns 19-22) thus minimizing computational overhead for model selections.

Di Pietro teaches a method and apparatus for automatically and reproducibly rating the transmission quality of a speech transmission system wherein differences between characteristic values are feed to a neural network which classifies the quality of

the difference signals as Good, Medium and Bad, and a defuzzyfication logic circuit further refines the quality classification output (Title, abstract). Di Pietro figure 5 shows that the tree outputs are scaled into a range of 0 to 1 and the final classification is determined by calculating the center of the area covered by the Good, Medium and Bad signal. Di Pietro also discloses that the so-called Bark scale may be used to define a twodimensional spectrogram.

Chen also teaches a method and apparatus for detecting zero rate frames in a communications system wherein a quality metric is computed and compared against a threshold value. The threshold value is selected based, in part, on the quality metrics received frames and can be selected based on the quality metrics computed for decoded frames (Title, abstract). Chen figure 5 also shows plotting two probability density functions (i.e. PDFs) wherein the threshold 514 can be set at a value Xth such that a desired outcome is achieved.

It would have been obvious for any one of ordinary skill in the art at the time the invention was made to modify the codec as taught by Hollier to utilizes a probability density function that classify signals as taught by Malvar or Di Pietro or Chen so that the codec may classify a signal or set a value such that a desired outcome is achieved.

Regarding claims 10, 26, 34, and 39-41. Hollier teaches at least one characteristic is echo and delay (col. 1 lines 15-67, col. 2 lines 30-67, columns 5-6).

Regarding claims 11, 27, and 35. Hollier teaches a packet switch network (#20 figure 1).

Regarding claim 12, 28, 36. Hollier teaches a circuit switch network (#20 figure 1).

Regarding claim 13, 30. Hollier teaches a network interface (see interface between #30 and #40 figure 2).

Regarding claims 14. Hollier teaches

a memory (#30, #40, #70 and #80 figure 2); and

an interface control circuit coupled to the memory (col. 9 lines 6-67, #30, #40, #70 and #80 figure 2).

Regarding claim 15. Hollier teaches a circuit switch device (#20 figure 1).

Regarding claim 16. Hollier teaches a packet switch device (#20 figure 1).

Regarding claim 17. Hollier teaches a telecommunication device (#20 figure 1).

Regarding claims 23-25. Hollier does not explicitly show one characteristic as an independent variable.

Malvar teaches a system and method for real time parametric modeling for a probability distribution function that approximates the users perception of the quality of a voice connection (abstract, columns 1-4, col. 5 lines 30-67, columns 7-12, col. 13 line 43 – col. 16 line 66, col. 18 line 50+). Malvar discloses using a modified probability distribution model wherein the shape is controlled by a single parameter, which is directly related to the peak value of the coefficients (columns 19-22) thus minimizing computational overhead for model selections.

Di Pietro teaches a method and apparatus for automatically and reproducibly rating the transmission quality of a speech transmission system wherein differences

between characteristic values are feed to a neural network which classifies the quality of the difference signals as Good, Medium and Bad, and a defuzzyfication logic circuit further refines the quality classification output (Title, abstract). Di Pietro figure 5 shows that the tree outputs are scaled into a range of 0 to 1 and the final classification is determined by calculating the center of the area covered by the Good, Medium and Bad signal. Di Pietro also discloses that the so-called Bark scale may be used to define a twodimensional spectrogram.

Chen also teaches a method and apparatus for detecting zero rate frames in a communications system wherein a quality metric is computed and compared against a threshold value. The threshold value is selected based, in part, on the quality metrics received frames and can be selected based on the quality metrics computed for decoded frames (Title, abstract). Chen figure 5 also shows plotting two probability density functions (i.e. PDFs) wherein the threshold 514 can be set at a value Xth such that a desired outcome is achieved.

It would have been obvious for any one of ordinary skill in the art at the time the invention was made to modify the codec as taught by Hollier to utilizes a probability density function that classify signals as taught by Malvar or Di Pietro or Chen so that the codec may classify a signal or set a value such that a desired outcome is achieved.

Regarding claim 54. Hollier teaches wherein the computer readable medium is selected form the group consisting of a dram, rom, prom, eeprom, a hard drive, or compact disk (columns 7-11, figures 1-5).

Regarding claims 55-58. Hollier teaches the telecommunications switching device coupled to the computer readable medium (see figures 1-2).

Regarding claim 59-60. Hollier teaches test quality measurement system (Title, abstract, figures 1-2).

***Response to Arguments***

2. Applicant's arguments with respect to claims 1-61 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

---(5,715,372) Meyers et al is considered pertinent for method and apparatus for characterizing an input signal via PDF.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barry W. Taylor whose telephone number is (703) 305-4811. The examiner can normally be reached on Monday-Friday from 6:30am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on (703) 305-4708. The fax phone number for this Group is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Technology Center 2600 customer service Office whose telephone number is (703) 306-0377.

SINH TRAN
PRIMARY EXAMINER